AMENDMENT TO THE SPECIFICATION:

At page 1, paragraph 1, starting on line 9, please change to read as follows:

The present invention relates to a ~~resynchronous~~ resynchronization control apparatus and a resynchronizing method suitable for use in a subscriber communication machine that can communicate in synchronization with a transmission cycle in, for example, ISDN (Integrated Services Digital Network) ping-pong transmission [TCM (Time Compression Multiplex) transmission] over a predetermined communication line such as a subscriber line.

At page 20, starting on line 23, please change to read as follows:

[[(5)]] (6) Report on TTR 310 Phase Information to the Subscriber ADSL Machine 660.

At page 23, last line, starting on line 27 through page 25, paragraph 1, please change to read as follows:

To achieve the above problem, the present invention provides a ~~resynchronous~~ resynchronization control apparatus for a subscriber communication machine which communicates with [[a]] an office communication machine over an existing communication line comprising an off-synchronous detector for detecting off-synchronization of communication with the office communication machine, a correlation processor for correlatively processing received data received over the communication line and held data having been transmitted from the office communication machine when the off-synchronous detector detects the off-synchronization, and a ~~resynchronous~~ resynchronization controller for specifying a synchronous timing by the correlation process of the correlation processor to establish resynchronization in communication with the office communication machine.

In the ~~resynchronous~~ resynchronization control apparatus having the above structure, when off-synchronization with the office communication machine is detected (off-synchronization detecting step), received data received thereafter and held data having been transmitted from the office communication machine are correlatively processed (correlation processing step). At this time, the held data is exerted an effect (transmission loss) according to transmission characteristics of the communication line, so that the correlation process is performed in consideration of the transmission characteristics of the communication line. The ~~resynchronous~~ resynchronization controller specifies a synchronous timing by the above correlation process to establish resynchronization with the office communication machine (resynchronization controlling step).

At page 26, paragraphs 1 and 2, starting on line 1, please change to read as follows:

It is therefore possible to certainly detect a transmission cycle, and accomplish ~~the resynchronous~~ resynchronization control.

The signal holder may hold an average value of received data in a certain section in the steady communication as the held data. In which case, an effect of the communication line on the received signal (held signal data) can be averaged with respect to time, which leads to more stable signal detecting process, further to more stable ~~resynchronous~~ resynchronization control. This contributes to improvement of reliability of the ~~resynchronous~~ resynchronization control.

At page 29, paragraph 3, starting on line 10, please change to read as follows:

When the subscriber communication machine includes ~~comprises~~ an equalizer for adaptively equalizing received data from the office communication machine while updating a

predetermined equalization coefficient, the ~~resynchronous~~ resynchronization controller may make the equalizer not update the equalization coefficient until the resynchronization is established after the off-synchronization is detected. In which case, it is possible to avoid the equalization coefficient from being updated on the basis of a received signal without reliability obtained while off-synchronization occurs.

At page 29, last paragraph, starting on line 25 and continuing to page 30, please change to read as follows:

When the subscriber communication machine includes ~~comprises~~ a gain amplifier for adaptively amplifying a gain of received data from the office communication machine while updating a predetermined gain coefficient, the ~~resynchronous~~ resynchronization controller may make the gain amplifier not update the gain coefficient until the resynchronization is established after the off-synchronization is detected. In which case, it is possible to avoid the gain coefficient from being updated on the basis of a received signal without reliability obtained while off-synchronization occurs.

The communication after resynchronization is established can thereby be stabilized as same as before occurrence of the off-synchronization, as well.

The ~~resynchronous~~ resynchronization controller may stop transmission to the office communication machine until the resynchronization is established when the off-synchronization is detected by the off-synchronous detector. In which case, it is possible to eliminate an effect of crosstalk or the like on the received signal caused by a transmit signal to the office communication machine, which leads to more stable ~~resynchronous~~ resynchronization control.

At page 32, last paragraph, starting on line 25 to page 33, paragraph 1, please change to read as follows:

Fig. 1 is a block diagram showing a structure of a subscriber ADSL machine (subscriber communication machine) when attention is paid to a receiving side block (receiver) thereof, according to an embodiment of this invention. As shown in Fig. 1, the subscriber ADSL machine 1 includes ~~comprises~~, as a receiver 2 (hereinafter referred to as a subscriber receiver 2), an AGC & A/D converter 1510, a time equalizer (TEQ) 90, a receiving side main block 1520, a data memory for AGC 1530, a data memory for TEQ 1540, and a data memory for FEQ 1550, and further includes ~~comprises~~, as a TTR ~~resynchronous~~ resynchronization controller 3, a TTR off-synchronous detector 1560, a signal detection processor 1570, a control unit 1580, and a signal switch 1590.

At page 42, paragraph 2, starting on line 12, please change to read as follows:

When the maximum value of the correlation values 1160 is updated, information on a frame position [position of the ADSL frame for data 410 or the synchronization symbol S shown in Fig. 13(C)] in a received hyperframe 430 [refer to Fig. 13(B)] at that time, and information on a sample position [a position of a sample among N samples configuring the ADSL frame for data 410 or the synchronization symbol S shown in Fig. 13(C)] in that frame are also held in the correlation maximum value holding memory 1170 along with the above correlation value 1160. The information on a frame position in the hyperframe 430 and the information on a sample position in the frame at this time are determined as count values of a frame counter and a sample counter (not shown) that start counting with a start of the TTR ~~resynchronous~~ resynchronization control by the control unit 1580 to be described later.

At page 43, paragraph 2, starting on line 13, please change to read as follows:

The control unit (~~resynchronous~~ resynchronization controller) 1580 shown in Fig. 1 specifies the TTR 310 on the basis of the frame position information and the sample position information held in the above correlation maximum value holding memory 1170 to resynchronize with the TTR 310. If the synchronization symbol S in the second position from the head in the hyperframe 430 is detected in, for example, Figs. 13(A) through 13(C), the inverse synchronization symbol I will be at the last sample position in the second superframe 420 from that symbol S. Based on this, a receive cycle of one hyperframe 430, that is, the TTR 310, is specified to resynchronize with it.

At page 50, paragraph 1, starting on line 4, please change to read as follows:

Next, description will be made of a basic operation (TTR resynchronizing method) of the TTR ~~resynchronous~~ resynchronization controller 3 in the subscriber receiver 2 with the above structure. Incidentally, the operation of the office transmitter 910 and the basic operations of the AGC & A/D converter 1510, the TEQ 90, and the receiving side main block 1520 are similar to those described above with reference to Figs. 6 through 15.

At page 51, paragraph 3, starting on line 14, please change to read as follows:

When noise diminishes to a certain degree after that (when shift of amplitude or phase of the pilot tone, and magnitude or S/N ratio of a received signal fall within a permissible value even in burst), thus the TTR ~~resynchronous~~ resynchronization controller 3 can recognize a received signal, the TTR ~~resynchronous~~ resynchronization controller 3 starts the TTR resynchronous process using the above data held in the correlation reference data memory 502.

At page 54, paragraph 1, starting on line 2, please change to read as follows:

Next, the TTR ~~resynchronous~~ resynchronization controller 3 confirms contents held in the determination result holding memory 1131 by the control signal generator 1180, and confirms contents (frame boundary information) held in the frame boundary detecting memory 1430, as well. When results of the determination on the past one symbol held in the determination result holding memory 1131 are all "1", the control signal generator 1180 generates a control signal making each of the FETs 501-i in the correlation block 1150 ON at a frame timing specified by the frame boundary information in the frame boundary detecting memory 1430 to make the correlation operation by the correlation block 1150 valid.

At page 56, last paragraph, starting on line 23 and continuing to page 58, line 1, please change to read as follows:

According to this embodiment, the TTR ~~resynchronous~~ resynchronization controller 3 holds known signal data received in the steady communication (the TEQ output of the inverse synchronization symbol I) as signal data for resynchronization. When off-synchronization with the TTR 310 occurs, the TTR ~~resynchronous~~ resynchronization controller 3 detects received data having the highest correlation with the known signal data on the basis of correlation between received data received asynchronously with the TTR 310 after that with the held signal data for resynchronization, and specifies the TTR 310 from a receiving timing of that signal data to resynchronize with the TTR 310. It is therefore unnecessary to once more perform the initialing process in order to resynchronize with the TTR 310; it is possible to restore the communication with the office ADSL machine 650 to resume it.

According to this embodiment, the TEQ output of a practical received signal subjected to an effect (transmission loss) due to transmission characteristics of the metallic line 70 is held as the above signal data for resynchronization. When off-synchronization occurs, signal data

having the highest correlation with the above signal data for resynchronization is detected from received data received in the equivalent conditions to the signal data for resynchronization over the metallic line 70 (frame boundary detection, magnitude determination and correlation operation), then the ~~resynchronous~~ resynchronization control is performed. It is therefore possible to certainly establish resynchronization in consideration of even the transmission characteristics of the metallic line 70.

At page 64, paragraph 2, starting on line 10, please change to read as follows:

When the subscriber receiver 2 gets out of synchronization with the TTR 310 in the above state, the subscriber receiver 2 resynchronizes with the TTR 310 using data held in the correlation reference data memory 502 by means of the TTR ~~resynchronous~~ resynchronization controller, as stated above. A signal transmitted from the office transmitter 910 and received by the subscriber receiver 2 is first inputted to the magnitude determination block 1120 before inputted to the correlation block 1150.

At page 68, paragraph 2, starting on line 5, please change to read as follows:

The correlation reference data memory 502 may hold an average value of the TEQ output of the inverse synchronization symbol I or the synchronization symbol S. In which case, effects of the metallic line 70 on a received signal (known signal held) can be averaged with respect to time, which leads to more stable ~~resynchronous~~ resynchronization control and improvement of reliability of the ~~resynchronous~~ resynchronization control.